detecting the combined light; and

based on the detected combined light, calculating (i) total reflected power, (ii) net retardance, and (iii) net fast axis for at least three different polarization states.

26. The method of claim 25, wherein directing light from a source in a delay line comprises directing such light without substantially altering polarization state of such light.

27. The method of claim 25, wherein directing light from a source to a sample, comprises selectively altering the polarization state of the light directed to the sample.

28. The method of claim 27, said selectively altering comprising providing polarized light to a waveplate and adjusting the a waveplate.

29. The method of claim 28, wherein providing polarized light comprises providing linear (plane) polarized light to the waveplate, and said adjusting comprising adjusting the optical characteristics of the waveplate to change polarization state of light incident on the sample.

30. The method of claim 25, wherein combining light comprises combining with light from the delay line light from the sample having substantially the same polarization state as the light illuminating the sample.

31. A method of generating an optical coherence tomography (OCT) image comprising:

directing light from a source to a delay line and to a sample while selectively altering the polarization state of the light directed to the sample;

combining light received from the delay line and light from the sample;

detecting the combined light; and

based on the detected combined light, presenting measured data using an HSV

color scale such that three parameters are used and plotted, whereby reflectance is mapped into saturation and value and retardance is mapped into hue.

32. The method of claim 31, wherein selectively altering comprises providing polarized light to a waveplate and adjusting the a waveplate.

33. The method of claim 32, wherein providing polarized light comprises providing linear (plane) polarized light to the waveplate, and wherein adjusting comprises adjusting the optical characteristics of the waveplate to change polarization state of light incident on the sample.

34. The method of claim 33, wherein combining light comprises combining with light from the delay line light from the sample having substantially the same polarization state as the light illuminating the sample.

35. A method of examining tissue of interest using an optical coherence tomography system having a light source, a reference arm, a sample arm including a polarizer and an addressable waveplate, and a single detector, said method comprising:

sequentially directing light having at least three incident polarization states from a source to a delay line and to a sample,

for each of the at least three incident polarization states, combining light received from the delay line and light from the sample,

using a single detector, detecting the combined light; and

for each of the at least three polarization states, calculating (i) total reflected power, (ii) net retardance, and (iii) net fast axis based on the detected combined light.

36. The method of claim 35, further comprising:

encoding polarization data in a light signal amplitude.

37. The method of claim 36, wherein said encoding includes directing light through a polarizer and an adjustable waveplate before and after said light reaches the sample.

38. An interferometer system having polarization sensitivity, comprising

a reference arm providing a delay line for electromagnetic energy;

a sample arm providing a path for incident electromagnetic energy having prescribed polarization characteristics to a sample, said sample arm including a polarizer and a polarization adjusting device that is selectively operable to modulate polarization; and

a detector arranged to detect electromagnetic energy from the delay line and from the sample.

39. The interferometer system of claim 38, said polarization adjusting device being operable selectively to determine the polarization states of light directed to the sample.

40. An interferometer system having polarization sensitivity, comprising

a reference arm providing a delay line for electromagnetic energy;

a sample arm providing a path for incident electromagnetic energy having prescribed polarization characteristics to a sample, said sample arm including a polarizer and a polarization adjusting device that is operable to modulate continuously such polarization; and

a detector arranged to detect electromagnetic energy from the delay line and from the sample.

41. A method of making polarization sensitive optical coherence tomography measurements, said method comprising:

in a reference arm, providing a delay line for electromagnetic energy;

in a sample arm, providing a path for incident electromagnetic energy having

prescribed polarization characteristics to a sample, selectively modulating the polarization to determine the polarization states of the electromagnetic energy directed to the sample; and

detecting electromagnetic energy from the delay line and from the sample.

42. A method of making polarization sensitive optical coherence tomography measurements, said method comprising:

in a reference arm, providing a delay line for electromagnetic energy;

In a sample arm, providing a path for incident electromagnetic energy having prescribed polarization characteristics to a sample, continuously modulating polarization of electromagnetic energy directed to the sample; and

detecting electromagnetic energy from the delay line and from the sample.